



2009 PANDEMIC H1N1 INFLUENZA PRESUMPTIVE AND CONFIRMED RESULTS

December 23, 2009

Sample Information					USDA National Veterinary Services Laboratories		USDA National Veterinary Services Laboratories	
					<i>PRESUMPTIVE POSITIVE TEST RESULTS</i>		<i>CONFIRMATORY TEST RESULTS</i>	
Date Sample Collected	Species	Sample Source ¹	No. of Samples	State	POSITIVE Matrix PCR ²	POSITIVE N1 PCR ³	VIRUS ISOLATION ⁴	GENETIC SEQUENCING ⁵
Aug/Sept 2009	Swine	CDC-funded research project at State Fairs; clinically healthy swine	6	MN	YES	YES	YES	2009 Pandemic H1N1
Aug/Sept 2009	Swine	CDC-funded research project at State Fairs; clinically healthy swine	5	MN	YES	3/5 Positive 2/5 Negative	YES-1, NO-4	2009 Pandemic H1N1
Aug/Sept 2009	Swine	CDC-funded research project at State Fairs; clinically healthy swine	1	SD	YES	YES	NO	N/A
10/5/09	Ferret	Clinically ill pet ferret following exposure to human with influenza-like illness	1	OR	YES	YES	YES	2009 Pandemic H1N1
10/22/09	Swine	USDA swine surveillance	4	IN	YES	YES	YES	2009 Pandemic H1N1
10/30/09	Cat	Clinically ill cat following exposure to human with influenza-like illness	1	IA	YES	YES	YES	2009 Pandemic H1N1
10/30/09	Ferret	Clinically ill pet ferret following exposure to human with influenza-like illness	1	NE	YES	YES	NO	N/A
10/23/09	Ferret	Clinically ill pet ferrets following exposure to human with influenza-like illness	3	OR	YES	YES	YES	2009 Pandemic H1N1
11/9/09	Cat	Clinically ill cat following exposure to human with influenza-like illness	1	OR	YES	YES	YES	2009 Pandemic H1N1
11/7/09	Cat	Clinically ill cat following exposure to human with influenza-like illness	1	PA	YES	YES	YES	2009 Pandemic H1N1
11/17/09	Cheetah	Clinically ill cheetah	1	CA	YES	YES	YES	2009 Pandemic H1N1
11/20/09	Turkey	Clinically ill turkeys (drop in egg production), possible exposure to human with influenza-like illness	4	VA	YES	YES	YES	2009 Pandemic H1N1
11/23/09 Same premises as 11/20	Turkey	Clinically ill turkeys (drop in egg production), possible exposure to human with influenza-like illness	1	VA	YES	YES	YES	2009 Pandemic H1N1
12/2/09 Same premises as 11/20	Turkey	Clinically ill turkeys (drop in egg production), possible exposure to human with influenza-like illness	2	VA	YES	YES	YES	No seq performed-same premises as 11/20
11/11/09	Swine	USDA swine surveillance	5	IL	Isolate rec'd-YES	Isolate rec'd-YES	N/A	2009 Pandemic H1N1
11/24/09	Swine	Mild clinical signs; possible exposure to humans with influenza-like illness	3	NC	Pending	YES	YES	2009 Pandemic H1N1

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12/15/09	Swine	Clinically ill pigs	7	NC	Pending	YES	YES	2009 Pandemic H1N1

¹Suspect positive 2009 pandemic H1N1 samples can be received by USDA's National Veterinary Services Laboratories (NVSL) from a variety of sources. Testing for the presence of 2009 pandemic H1N1 influenza in the U.S. swine herd is part of USDA's National Swine Influenza Virus Surveillance Plan. Additionally, understanding the diversity of influenza viruses circulating in pigs is important for pandemic preparedness. Because of this need and given the increase in sporadic human infections with swine influenza viruses that was identified through CDC surveillance, CDC and USDA entered into an interagency agreement in August 2008. As part of that agreement, samples might be received from CDC-sponsored studies seeking to understand which influenza viruses might be found in pigs at fair settings. Finally, private practitioners might collect and submit samples from swine or other species and submit those samples to state laboratories for initial screening, with suspect positive samples then submitted to NVSL.

^{2,3} A series of rapid screening tests are performed. The matrix test detects all influenza A viruses. The N1 test is specific for the N1 protein of the 2009 pandemic H1N1 virus. The initial rapid screening tests are highly sensitive and can detect active and inactive viruses in samples. Because these rapid screening tests are highly sensitive, it is not uncommon to have positive results for a specific subtype on the initial screen test and yet not be able to isolate a virus.

⁴ Virus isolation is the gold standard test used to diagnose influenza A infections. The virus is grown and isolated in cell culture or embryonated chicken eggs.

⁵ This test involves identifying the genetic sequence or key parts of the sequence (hemagglutinin (H), matrix (M), neuraminidase (N)) of the virus grown and comparing it to known influenza A genetic sequences. These known sequences are stored in databanks. If the genetic sequence matches that of a 2009 pandemic H1N1 virus, the sample is considered to be positive for 2009 pandemic H1N1.